# COPPELL ISD MATHEMATICS YEAR-AT-A-GLANCE

## MATHEMATICS | GRADE 3

### Program Transfer Goals

- Use a problem-solving model that incorporates analyzing given information, formulating a plan or strategy, determining a solution, justifying the solution, and evaluating the problem-solving process and the reasonableness of the solution.
- Select tools, including real objects, manipulatives, paper and pencil, and technology as appropriate, and techniques, including mental math, estimation, and number sense as appropriate, to solve problems.
- Communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate.
- Display, explain, and justify mathematical ideas and arguments using precise mathematical language in written or oral communication.

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### PACING

| First Grading Period | | Second Grading Period | | Third Grading Period | | Fourth Grading Period | | |
|---|---|---|---|---|---|---|---|---|
| Unit 1: Understanding Numbers | Unit 2: Addition and Subtraction | Unit 3: Personal Financial Literacy | Unit 4: Multiplication and Division | Unit 5: Perimeter and Area | Unit 6: Geometry | Unit 7: Fractions | Unit 8: Measurement | Unit 9: Application of Multiplication and Division |
| BOY Screener | | | | MOY Screener | | EOY Screener | | |

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### Assurances for a Guaranteed and Viable Curriculum [STANDARDIZED ACROSS ALL CONTENT AREAS]

Adherence to this scope and sequence affords every member of the learning community clarity on the knowledge and skills on which each learner should demonstrate proficiency. In order to deliver a guaranteed and viable curriculum, our team commits to and ensures the following understandings:

**Shared Accountability: Responding to the Needs of All Learners**

- High levels of learning for all students.
- The district and course formative assessments aligned to the standards for this course support educators and learners in monitoring academic achievement and leveraging interventions.

**Shared Understanding: Curriculum Design**

- The district curriculum design weaves together the elements of content, skills and assessments in order to adhere to curriculum design at the macro and micro level, ensuring vertical alignment.
- The district curriculum incorporates standards, scope and sequence, enduring understandings, essential questions, performance assessments, and recommended resources.

**Interdependence: Curriculum Units**

Members of the learning community utilize the curriculum units, plan collaboratively, and reflect on results for continuous improvement.

## Unit 1: Understanding Numbers

**Timeline: 3 weeks - 1st Grading Period**

Learners begin by representing numbers (up to 100,000) in multiple ways and compare them based on their place value. Learners explain the relationship in the base-ten system, and represent this relationship using expanded notation. Estimation is conceptualized by the use of a number line. Throughout this unit, learners will summarize data using a frequency table and dot plot. Learners use the data to draw conclusions and answer questions.

- **Transfer Goal:**
    - Communicate representations of numbers using objects, pictures, standard form, and expanded notation
    - Communicate comparisons of numbers using written and oral language, and symbols
    - Select tools, such as open number lines and an understanding of place value, to estimate, compare, and order numbers
    - Use written or oral language to explain and justify the order and comparisons of numbers
    - Select tools to collect, sort, and organize data
    - Use tables and graphs to communicate the organization of data

*Students will know…*

The mathematical relationships found the in base-ten place value system (through the hundred thousands place)

*Students will be skilled at…*

Composing numbers up to 100,000 in various ways; decomposing numbers up to 100,000 in various ways; representing numbers on a number line between two consecutive multiples of 10, 100, 1,000 and 10,000; Comparing and ordering whole numbers up to 100,000; representing comparisons using symbols (<,=,>); summarizing data using a frequency table, and dot plot; solving problems using data

## UNIT 2: ADDITION AND SUBTRACTION

**TIMELINE: 6 WEEKS - 1ST AND 2ND GRADING PERIOD**

Learners build on their understanding of place value as they begin to invent strategies and/or use mental math and the properties of operations to construct methods for adding and subtracting multi-digit numbers. Eventually the learners will relate these strategies to the standard algorithm. Learners solve different types of problems, including those involving increments of time, where the unknown is any term. Learners use reasoning and thought to estimate to sums and differences. Learners round numbers using the relative sizes of numbers as opposed to memorizing rounding "rules." Learners apply their knowledge of addition and subtraction to combine increments of time, as well as finding the value of a collection of coins and bills. Throughout this unit, learners will summarize data using a frequency table, dot plot, pictograph, and bar graph. Learners use the data to draw conclusions and answer questions.

- **Transfer Goal:**
  - Use written and oral language to communicate strategies used to add and subtract
  - Use a problem-solving model to solve one-step and two-step addition and subtraction problems, including those involving time and money
  - Select tools, such as an understanding of place value to estimate sums and differences
  - Select tools to collect, sort, and organize data
  - Use graphs to communicate the organization of data

*Students will know…*

Various strategies that can be used to compute numbers; strategies used with addition and subtraction can be used to solve problems about time; strategies used with addition and subtraction can be used to solve problems about money

*Students will be skilled at…*

Solving with fluency one-step and two-step problems involving addition and subtraction within 1,000; rounding to the nearest 10 or 100; using compatible numbers to estimate solutions to addition and subtraction problems; represent one-step and two-step problems involving addition and subtraction of whole numbers to 1,000 using pictorial models, number lines, and equations; solving problems involving addition and subtraction of time intervals in minutes; determining the value of a collection of coins and bills; summarizing data using a frequency table, and dot plot; solving problems using data

## Unit 3: Personal Financial Literacy

**Timeline: 2 weeks - 2nd Grading Period**

Learners discover effects of financial decisions. Learners explain connections between human capital and income. Learners make decisions about spending, saving, charitable giving, and using credit. Learners explore the effects of availability of resources and how affects cost. Throughout this unit, learners will summarize data using a frequency table, dot plot, pictograph, and bar graph. Learners use the data to draw conclusions and answer questions.

- **Transfer Goal:**
  - Explain concepts of human capital, human labor, income, cost
  - Explain and justify financial decisions using reasoning to explain implications of spending, saving, charitable giving, and using credit
  - Select tools to collect, sort, and organize data
  - Use graphs to communicate the organization of data

*Students will know…*
reasons to save; the connection between human capital/labor and income; what credit is; the benefits of a savings plan

*Students will be skilled at…*
listing reasons to save; summarizing data using a frequency table, dot plot, pictograph, and bar graph; solving problems using data

## Unit 4: Multiplication and Division

**Timeline: 9 weeks - 2nd and 3rd Grading Period**

Learners build on the understanding of equal groups by representing multiplication and division situations (one-step and two-step) with different models, mental math, partial products, and the properties of operations. Tables are used to represent relationships between number pairs. Through multiple experiences, the relationship between multiplication and division is realized and used to find quotients. The standard algorithm is linked to the representations, and used to multiply numbers. Learners use divisibility to determine numbers that are odd or even. Throughout this unit, learners will summarize data using a frequency table, dot plot, pictograph, and bar graph. Learners use the data to draw conclusions and solve one-step problems.

- **Transfer Goal:**
  - Select tools to model and solve contextual multiplication and division situations
  - Use written and oral language to communicate strategies to solve multiplication and division situations
  - Select tools to collect, sort, and organize data
  - Use graphs to communicate the organization of data

*Students will know…*
Ways to represent multiplication and division problems; Tables can be used to show relationships between number pairs

*Students will be skilled at…*
Recalling multiplication and division facts; determining if a number is even or odd based on divisibility; solving two-digit by one-digit multiplication problems; representing problems with models; determining an unknown whole number in a multiplication or division equation; representing real-world relationships using number pairs in a table; summarizing data using a frequency table, dot plot, pictograph, and bar graph; solving problems using data

## Unit 5: Perimeter and Area

**Timeline: 2 weeks - 3rd Grading Period**

Learners find the area of rectangles (and squares as special rectangles) by using models that represent the number of rows and columns to calculate the area. Rectangles begin with square units defined. Learners begin to combine the areas of two figures that have been composed into one composite figure. At this point, learners use their knowledge of the attributes of polygons to find the perimeter or missing side length of a polygon. After understanding area and perimeter, the learner begins to calculate area and/or perimeter when given the side lengths of a polygon or composite figure (without the square units defined). Throughout this unit, learners will summarize data using a frequency table, dot plot, pictograph, and bar graph. Learners use the data to draw conclusions and solve one-step problems.

- **Transfer Goal:**
  - Select tools to calculate area of a rectangle or composite figure and the perimeter of a polygon
  - Select tools to collect, sort, and organize data
  - Use graphs to communicate the organization of data

*Students will know…*
the difference between area and perimeter

*Students will be skilled at…*
Determining the area of rectangles; determining the perimeter of a polygon; determining the missing length when given the perimeter of a polygon; summarizing data using a frequency table, dot plot, pictograph, and bar graph; solving problems using data

## Unit 6: Geometry

**Timeline: 4 weeks - 3rd Grading Period**

Learners begin by identifying two-dimensional and three-dimensional based on the presence or attributes of specific attributes. Learners may notice that some polygons can fit into two categories based on their attributes. Throughout this unit, learners will summarize data using a frequency table, dot plot, pictograph, and bar graph. Learners use the data to draw conclusions and solve one-step problems.

- **Transfer Goal:**
  - Use written or oral language to communicate classification of two-dimensional figures based on presence or absence of specific attributes
  - Select tools to classify and sort two-dimensional and three-dimensional figures
  - Select tools to collect, sort, and organize data
  - Use graphs to communicate the organization of data

*Students will know…*
Attributes of two-dimensional figures; attributes of three-dimensional figures

*Students will be skilled at…*
Classifying and sorting two-dimensional and three-dimensional figures; identifying two-dimensional figures based on the presence or absence of specific attributes; drawing two-dimensional figures that are not quadrilaterals; using attributes to recognize quadrilaterals; summarizing data using a frequency table, dot plot, pictograph, and bar graph; solving problems using data

## UNIT 7: FRACTIONS

**TIMELINE: 5 WEEKS - 4TH GRADING PERIOD**

Learners learn fractions in a natural context and solve problems involving partitioning wholes and sets. Learners are provided opportunities to use area models, length models, and set models as they model fractions partitioned into 2,3,4,6, or 8 equal parts/groups. Students understand that the partitioned parts must be the same size/area, but do not have to be represented in the same shape. Learners explain each part of the fraction as a unit fraction. Learners can write the fraction as *a*/*b* where *a* is the specified number of parts being counted while *b* is the number of parts in the whole altogether. Learners compare fractions that have either the same numerator or same denominator. Learners use conceptual understanding, not procedural knowledge, to determine equivalency (if two fractions represent the same amount of a whole or are on the same place on a number line). Throughout this unit, learners will summarize data using a frequency table, dot plot, pictograph, and bar graph. Learners use the data to draw conclusions and solve one-step and two-step problems.

- **Transfer Goal:**
  - Select tools, including real objects, manipulatives, paper and pencil, and technology to represent and solve problems involving fractions
  - Use written and oral language to explain representations of fractions
  - Use written and oral language to explain equivalence of fractions
  - Select tools to collect, sort, and organize data
  - Use graphs to communicate the organization of data

*Students will know…*

Definition of a fraction, numerator, and denominator; the unit fraction 1/*b* represents the quantity formed by one part of a whole that has been partitioned into *b* equal parts where *b* is a non-zero whole number; ways to represent fractions using area models, length models, set models

*Students will be skilled at…*

decomposing two-dimensional figures into parts with equal areas and expressing them as a unit fraction; representing fractions in multiple ways; composing and decomposing fractions; comparing fractions with the same numerator; comparing fractions with the same denominator; write fractions as *a*/*b* (where *a* is the specified number of parts being counted while *b* is the number of parts in the whole altogether); representing equivalent fractions; explaining why two fractions are equivalent; summarizing data using a frequency table, dot plot, pictograph, and bar graph; solving problems using data

## Unit 8: Measurement

**Timeline: 2 weeks - 4th Grading Period**

Learners differentiate between liquid volume/capacity and weight and determine which unit of measure is used when measuring that attribute. A variety of measurement tools are used to determine volume and weight, as well as use benchmark units to estimate liquid volume and weight. Throughout this unit, learners will summarize data using a frequency table, dot plot, pictograph, and bar graph. Learners use the data to draw conclusions and solve one-step and two-step problems.

- **Transfer Goal:**
  - Select tools to measure liquid volume or weight using standardized units
  - Use written and oral language to communicate measurement
  - Explain and justify the property being measured
  - Select tools to collect, sort, and organize data
  - Use graphs to communicate the organization of data

*Students will know…*
the definitions of weight and capacity (liquid volume); the tools and unit used to measure weight and capacity

*Students will be skilled at…*
determining liquid volume; determining weight; determining the appropriate unit in given situations; summarizing data using a frequency table, dot plot, pictograph, and bar graph; solving problems using data

## Unit 9: Application of Multiplication and Division

**Timeline: 3½ weeks - 4th Grading Period**

Learners continue to develop their understanding of multiplication and division as they continue to apply it in various situations. Learners explore connections between the authentic situations and multiplication and division through various projects and experiences. Throughout this unit, learners will summarize data using a frequency table, dot plot, pictograph, and bar graph. Learners use the data to draw conclusions and solve one-step and two-step problems.

- **Transfer Goal:**
  - Select tools to model and solve contextual multiplication and division situations
  - Use written and oral language to communicate strategies to solve multiplication and division situations
  - Use written and oral language to communicate mathematical ideas in authentic situations that involve multiplication and division concepts
  - Select tools to collect, sort, and organize data
  - Use graphs to communicate the organization of data

*Students will know…*
multiplication and division is applicable in authentic contexts; a variety of tools can be used to communicate and represent connected ideas

*Students will be skilled at…*
Connecting multiplication and division to authentic situations; explaining ways that multiplication and division are used in authentic situations; Recalling multiplication and division facts; applying divisibility to authentic situations; solving problems involving multiplication and division; representing problems using models; representing real-world relationships using number pairs in a table; summarizing data using a frequency table, dot plot, pictograph, and bar graph; solving problems using data